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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/826,432 | 04/16/2004 | David Allen Kastrup | 140728 | 9853 |
| 29399 | 7590 | 12/21/2007 | EXAMINER | |
| JOHN S. BEULICK (12729) C/O ARMSTRONG TEASDALE LLP ONE METROPOLITAN SQUARE SUITE 2600 ST. LOUIS, MO 63102-2740 | | | | NGUYEN, ANDREW H |
| ART UNIT | | PAPER NUMBER | | |
| | | 4124 | | |
| | | | NOTIFICATION DATE | |
| | | | DELIVERY MODE | |
| | | | 12/21/2007 | |
| | | | ELECTRONIC | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

USpatents@armstrongteasdale.com

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/826,432 | KASTRUP ET AL. |
| | Examiner | Art Unit |
| | Andrew Nguyen | 4124 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 20 July 2004.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
 4a) Of the above claim(s) 1-6 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 7-20 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 16 April 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/20/04</u> . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-6, drawn to method for fabricating a turbine combustor, classified in class 431, subclass 183.
 - II. Claims 7-13 and 14-20, drawn to a combustor, classified in class 60, subclass 748.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are related as process of making and product made, respectively. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the products of claim 7 and claim 14 as claimed can be made by another and materially different process. The process specifies coupling a venturi to a primary swirler. The products as claimed can be made by a process that does not require the venturi to be coupled to a primary swirler.

2. During a telephone conversation with Robert Reeser on 11/7/07 a provisional election was made with traverse to prosecute the invention of Group II, claims 7-13 and 14-20. Affirmation of this election must be made by applicant in replying to this Office

action. Claims 1-6 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 7-8, 13-15, and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4,938,019 to Angell et al. (Angell).

In reference to claim 7:

Angell teaches:

*A combustor for a gas turbine engine, said combustor comprising
a venturi (80c, 80d, 80e)
a secondary swirler (100, 106) extending circumferentially around said venturi,
said secondary swirler coupled to said venturi such that a gap (73) is defined
between a portion of said secondary swirler and said venture*

In reference to claim 8:

Angell teaches:

*A combustor in accordance with Claim 7 (see rejection of claim 7 above) further
comprising a primary swirler (86,84) coupled to said venturi such that said venturi
is between said primary and secondary swirlers (venturi wall 62).*

In reference to claim 13:

Angell teaches:

*A combustor in accordance with Claim 7 (see rejection of claim 7 above) wherein
said gap facilitates reducing an operating temperature of said venturi (73;
insulates venturi from convective heat transfer of airflow through secondary
swirler)*

In reference to claim 14:

Angell teaches:

*A gas turbine engine comprising a combustor comprising at least one annular air
swirler (100, 106) and an annular venture (80c, 80d, 80e), said annular air swirler
coupled to said venturi such that a gap (73) is defined between a portion of said
air swirler and said venturi.*

In reference to claim 15:

Angell teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above) wherein said gap facilitates reducing an operating temperature of said venturi (73; insulates venturi from convective heat transfer of airflow through secondary swirler).

In reference to claim 18:

Angell teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above) wherein said gap facilitates maintaining an operating temperature of said venturi below a predetermined temperature (73; insulates venturi from convective heat transfer of airflow through secondary swirler; venturi will fall below a certain temperature).

In reference to claim 19:

Angell teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above) wherein said gap facilitates reducing coking of said venture (73; insulates venturi from convective heat transfer of airflow through secondary swirler; reduced venturi temperature will reduce coking).

In reference to claim 20:

Angell teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above) wherein said at least one air swirler comprises a primary swirler (86, 84) and a secondary swirler (100, 106), said venturi (80c, 80d, 80e) coupled between said primary and secondary swirlers.

7. Claims 7, 11, 14, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,389,815 to Hura et al. (Hura).

In reference to claim 7:

Hura teaches:

A combustor for a gas turbine engine, said combustor comprising a venturi (154) a secondary swirler (194) extending circumferentially around said venturi, said secondary swirler coupled to said venturi such that a gap (126) is defined between a portion of said secondary swirler and said venturi.

In reference to claim 11:

Hura teaches:

A combustor in accordance with Claim 7 (see rejection of claim 7 above) wherein said secondary swirler (194) comprises a secondary air passage (124) extending therethrough and a plurality of openings (174), said openings couple said secondary air passage and said gap in flow communication

In reference to claim 14:

Hura teaches:

A gas turbine engine comprising a combustor comprising at least one annular air swirler (194) and an annular venturi (154), said annular air swirler coupled to said venturi such that a gap (126) is defined between a portion of said air swirler and said venturi.

In reference to claim 17:

Hura teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above) wherein said air swirler (194) defines a flow passageway extending therethrough (124), said at least one air swirler comprises a plurality of openings (174) extending in flow communication between said flow passageway and said gap

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 7, 11, 14, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent 6,871,501 to Bibler et al. (Bibler).

In reference to claim 7:

Bibler teaches:

A combustor for a gas turbine engine, said combustor comprising a venturi (107) a secondary swirler (140) extending circumferentially around said venturi, said secondary swirler coupled to said venturi such that a gap (between surfaces 100 and 104) is defined between a portion of said secondary swirler and said venturi

In reference to claim 11:

Bibler teaches:

A combustor in accordance with Claim 7 (see rejection of claim 7 above) wherein said secondary swirler (140) comprises a secondary air passage (44) extending therethrough and a plurality of openings (98), said openings couple said secondary air passage and said gap in flow communication

In reference to claim 14:

Bibler teaches:

A gas turbine engine comprising a combustor comprising at least one annular air swirler (140) and an annular venturi (107), said annular air swirler coupled to said venturi such that a gap (between surfaces 100 and 104) is defined between a portion of said air swirler and said venturi.

In reference to claim 17:

Bibler teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above) wherein said air swirler (140) defines a flow passageway extending therethrough (44), said at least one air swirler comprises a plurality of openings (98) extending in flow communication between said flow passageway and said gap

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention “by another,” or by an appropriate showing under 37 CFR 1.131.

Claim Rejections - 35 USC § 103

10. Claim 9-10 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,938,019 to Angell et al. (Angell) in view of US Patent 4,584,834 to Koshoffer et al. (Koshoffer).

In reference to claim 9:

Angell teaches:

A combustor in accordance with Claim 8 (see rejection of claim 8 above)

Angell fails to teach:

wherein at least a portion of said venturi is slidably coupled to a portion of one of said primary and said secondary swirlers.

Koshoffer teaches a gas turbine engine combustor comprising primary and secondary swirlers that are slidably coupled (col 4 lines 52-60) in order to accommodate differential thermal expansions and contractions. It would have been obvious to one of ordinary skill in the art at the time of the invention to slidably couple the components of Angell in order to accommodate differential thermal expansions and contractions, as explicitly taught by Koshoffer.

In reference to claim 10:

Angell teaches:

A combustor in accordance with Claim 8 (see rejection of claim 8 above)

Angell fails to teach:

wherein at least a portion of said venturi is coupled to a portion of one of said primary and said secondary swirlers in a slide fit, said slide fit facilitates accommodating thermal growth of at least one of said primary and said secondary swirler with respect to said venturi.

Koshoffer teaches a gas turbine engine combustor comprising primary and secondary swirlers that are slidably coupled (col 4 lines 52-60) in order to accommodate differential thermal expansions and contractions. It would have been obvious to one of ordinary skill in the art at the time of the invention to slidably couple the components of Angell in order to accommodate differential thermal expansions and contractions, as explicitly taught by Koshoffer.

In reference to claim 16:

Angell teaches:

A gas turbine engine in accordance with Claim 14 (see rejection of claim 14 above)

Angell fails to teach:

wherein at least a portion of said at least one annular air swirler is coupled in a slide fit against said venturi.

Koshoffer teaches a gas turbine engine combustor comprising primary and secondary swirlers that are slidably coupled (col 4 lines 52-60) in order to accommodate differential thermal expansions and contractions. It would have been obvious to one of ordinary skill in the art at the time of the invention to slidably couple the components of Angell in order to accommodate differential thermal expansions and contractions, as explicitly taught by Koshoffer.

11. Claim 12 rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 4,938,019 to Angell et al. (Angell) in view of US Patent 5,220,786 to Campbell (Campbell).

Angell teaches:

A combustor in accordance with Claim 7 (see rejection of claim 7 above)

Angell fails to teach

wherein said gap is defined between a radially outer surface of said venturi and a radially inner surface of said secondary swirler, said venturi radially outer surface comprises a layer of thermal barrier coating.

Campbell teaches a thermally protected venturi for a combustor dome. Campbell teaches applying thermal barrier coating to a radially outer surface of the venturi (28) in order to thermally protect or insulate the venturi from hot air flowing along the outer surface (col 3 lines 8-12). It would have been obvious to one of ordinary skill in the art at the time of the invention to apply thermal barrier coating to the outer surface of the venturi of Angell in order to thermally protect it from hot air, as explicitly taught by Campbell.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent 6,047,539 to Farmer teaches using thermal barrier coating on a gas turbine combustor venturi. US Patents 6,427,446 to Kraft et al. and 6,622,488 to Mansour et al. teach gas nozzles that are insulated on their radially outer surfaces by an air gap.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Nguyen whose telephone number is 571-270-5063. The examiner can normally be reached on Monday through Friday 8:30 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Bomberg can be reached on 571-272-4922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AN

/Thor S. Campbell/
Primary Examiner, Art Unit 3742